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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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09/498,220 02/04/00 SCHONER

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EXAMINER

IM52/1101

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KERNS, K.  
ART UNIT

PAPER NUMBER

1725  
DATE MAILED:

11/01/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/498,220

Applicant(s)

SCHONER ET AL.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement dated July 21, 2000, has been considered by the examiner, but this IDS lacks proper identification of the filing date (2/4/00) and application number (09/498,220). This IDS is derived from the parent application 09/154,556 filed 9/16/98. In addition, the submission of a PTO-892 Form from the parent application (09/154,556), does not constitute a proper information disclosure statement. Although the examiner has considered all the above references of record, the applicants should submit a new information disclosure statement with all pertinent art of record in this application.

### ***Drawings***

2. The drawings are objected to because the section lines 4-4 should be deleted from Figure 3 (as addressed on the top of page 9 of the applicants' amendment).  
Correction is required.

### ***Claim Objections***

3. Claim 17 is objected to because of the following informalities: in line 5, the word "being" before "under" should be deleted. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hubert et al. (US 5,158,129) in view of Mulder et al. (US 5,474,609).

Hubert et al. disclose a method and device for feeding a granular material into a continuous casting mold, in which the device includes a source of granular mold powder, an upper hopper (tundish), a secondary (intermediate) hopper, a valve and transfer means (tube) between the hoppers, a flow sensor, and granular material

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delivery means (delivery tube assembly) interconnected via a (flexible) pipe between the secondary hopper and the top of the cast slab within the continuous casting mold (abstract; column 3, lines 8-54; column 4, lines 57-65; and Figure). Hubert et al. do not disclose the use of an inline air pump.

However, Mulder et al. teach a method and apparatus for applying powder coating material in which the apparatus includes a powder supply system (hopper) with a pneumatically actuated (flexible with variable diameter) pinch valve and a venturi-type powder pump, the pinch valve of which receives an output signal (on/off) from a sensor to correspond to a desired quantity of powder level in the hopper (column 13, lines 22-35; column 14, lines 14-40; column 17, lines 1-19; and Figure 2). The inline air pump includes a solenoid valve, pressurized air, and a pump, connected to the feed container (column 4, lines 12-29; and Figure 2). The apparatus also contains control sensors and pneumatic controls, the sensors of which allow the operator to control the level of the powder in the container (abstract; column 2, lines 59-67; column 6, lines 43-67; and Figure 2). These features are advantageous for controlling the amount of powder in the container, as indicated by the output signal (column 14, lines 14-40; and column 17, lines 1-19).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to combine the device for feeding a granular material into a continuous casting mold, as disclosed by Hubert et al., with the pneumatic pinch valve means of Mulder et al., in order to control the amount of powder in the container (Mulder et al.; column 14, lines 14-40; and column 17, lines 1-19).

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With regard to the multiple delivery tube assemblies, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add further delivery tubes to the assembly, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

8. Claims 1-13 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hubert et al. (US 5,158,129) taken with Mulder et al. (US 5,474,609), and further in view of Raftis (US 4,372,528).

Hubert et al. disclose a method and device for feeding a granular material into a continuous casting mold, in which the device includes a source of granular mold powder, an upper hopper (tundish), a secondary (intermediate) hopper, a valve and transfer means (tube) between the hoppers, a flow sensor, and granular material delivery means (delivery tube assembly) interconnected via a (flexible) pipe between the secondary hopper and the top of the cast slab within the continuous casting mold (abstract; column 3, lines 8-54; column 4, lines 57-65; and Figure). Hubert et al. do not disclose the use of an inline air pump and a variable diameter pinch valve for controlling the flow rate of the granular mold flux.

However, Mulder et al. teach a method and apparatus for applying powder coating material in which the apparatus includes a powder supply system (hopper) with a pneumatically actuated (flexible with variable diameter) pinch valve and a venturi-type powder pump, the pinch valve of which receives an output signal (on/off) from a sensor

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to correspond to a desired quantity of powder level in the hopper (column 13, lines 22-35; column 14, lines 14-40; column 17, lines 1-19; and Figure 2). The inline air pump includes a solenoid valve, pressurized air, and a pump, connected to the feed container (column 4, lines 12-29; and Figure 2). The apparatus also contains control sensors and pneumatic controls, the sensors of which allow the operator to control the level of the powder in the container (abstract; column 2, lines 59-67; column 6, lines 43-67; and Figure 2). These features are advantageous for maintaining a predetermined level of powder in the container, as indicated by the output signal (column 14, lines 14-40; and column 17, lines 1-19).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to combine the device for feeding a granular material into a continuous casting mold, as disclosed by Hubert et al., with the pneumatic pinch valve means of Mulder et al., in order to maintain a predetermined level of powder in the container (Mulder et al.; column 14, lines 14-40; and column 17, lines 1-19).

Hubert et al. (in view of Mulder et al.) disclose all the features of the claims above, but these references do not specifically teach the use of the pinch valve in intermediate positions between open and closed to maintain accurate control of the powder flow rate.

However, Raftis discloses a pinch valve sleeve comprised of an elongated hollow flexible resilient elastomeric sleeve body (rubber sleeve) with a plurality of radially-extending, inwardly-directed protrusions operative for impeding flow (abstract; column 2,

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lines 16-30; column 7, lines 31-35 and 59-65; column 8, lines 1-27; and Figures 2 and 3). It is well known in the art that pinch valve constructions have applications in controlling flow of a wide variety of materials, including particulate materials such as sand, asbestos, fiber, and talc (column 1, lines 36-44). The pinching action is actuated by hydraulic or air pressure on the outer surface of the sleeve body (column 5, lines 34-39). This sleeve construction is advantageous for the purpose of achieving excellent flow control upon constricting the intermediate section of the sleeve partially (plurality of intermediate positions) or entirely with the pinching mechanism (column 6, lines 29-32).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to combine the device for feeding a granular material into a continuous casting mold, as disclosed by Hubert et al., with the inline air pump and pneumatic pinch valve means of Mulder et al., and further with the variety of intermediate valve positions disclosed by Raftis, in order to achieve excellent flow control upon constricting the intermediate section of the sleeve partially or entirely with the pinching mechanism (Raftis; column 6, lines 29-32).

With regard to the multiple delivery tube assemblies, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add further delivery tubes to the assembly, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.



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***Response to Arguments***

9. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.


***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (703) 305-3472. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-6078 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

KPK  
kpk  
October 24, 2001

  
M. ALEXANDRA ELVE  
PRIMARY EXAMINER